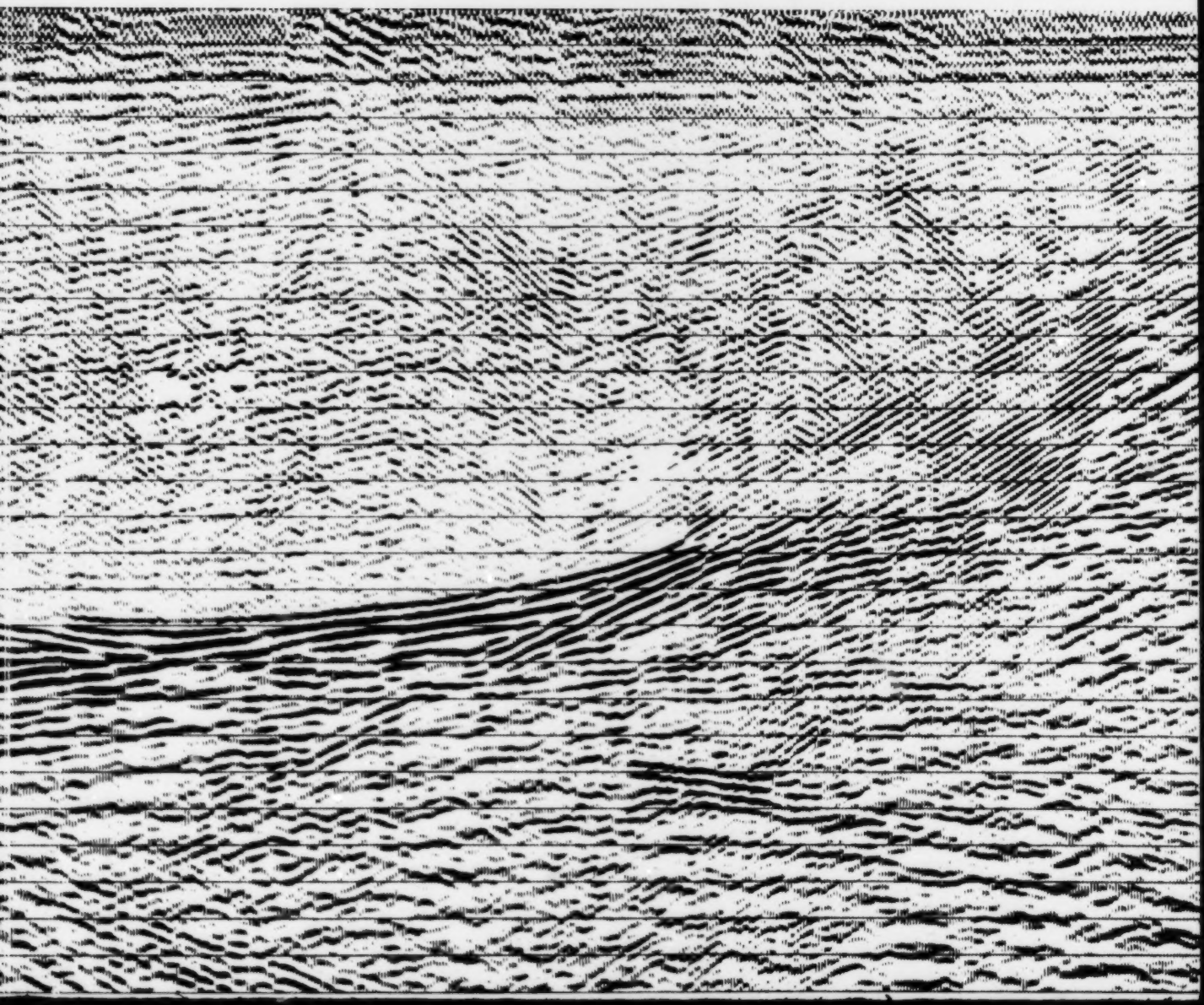
Nova Scotia

Department of Mines and Energy

Information Series No. 14

Reflection Seismic Coverage of Onshore and Nearshore Nova Scotia 1942-1987

compiled by P.G. McMahon



ADDENDUM

Due to a modification in the coding of Nova Scotia Department of Mines and Energy Assessment Reports, the following reference numbers cited in the text should be changed:

Old Number	New Number
AR 11E/05D 39-D-74(06)	AR 83-014
AR 11E/05D 39-D-74(10)	AR OFFSHORE 77-001
AR 21H/09D 39-E-23(01)	AR 72-001
AR 11F/13B 39-B-10(03)	AR OFFSHORE 82-014
AR 11F/12C 39-B-04(05)	AR 82-004
AR 11K/03B 39-J-35(10)	AR 82-030
AR 11F/13A 39-B-40(02)	AR OFFSHORE 83-023
AR OFFSHORE 39-W-23(04)	10-87-0038-S.2 (central registry)
AR 21H/09D 39-W-13(03)	10-87-0087-0 (central registry)
AR OFFSHORE 39-W-13(05)	10-87-0085-0 (central registry)

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Honourable Ken Streatch, Minister

John J. Laffin, P. Eng., FEIC, Deputy Minister

HALIFAX, NOVA SCOTIA
1988

89-04971/

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ENCLOSURES

Map No. 1 - Seismic Coverage, Southwestern Nova Scotia ..... rear pocket

Map No. 2 - Seismic Coverage, Central Nova Scotia ..... rear pocket

Map No. 3 - Seismic Coverage, Northeastern Nova Scotia ..... rear pocket

INTRODUCTION

The purpose of this report is to provide a summary compilation of the reflection seismic projects which have been conducted both onshore and nearshore Nova Scotia. A vast amount of offshore data, therefore, has not been included. A number of refraction seismic projects, conducted for shallow depth geotechnical purposes, are not included. One refraction project was included due to its potential importance to the petroleum industry. The compilation is meant to serve as a quick reference to indicate where seismic work has been completed and to facilitate further research by interested parties.

Within the last few years much more emphasis has been placed on making use of existing seismic information. This has been due to an increased awareness of the value of such information and an increase in the availability of data. Access to data can be gained through the reports and files cited or directly through the companies involved.

Each project has been summarized and given a map index number based on the chronological order of the projects. The lines for each have been plotted with the appropriate project index number. Where the addition of lines would lead to confusion due to the density of information, area boundaries are substituted. Three map sheets covering onshore and nearshore Nova Scotia are included with this report (Fig. 1).

The information in this report was obtained from various reports and files found at the Nova Scotia Department of Mines and Energy, Halifax. These are cited under the summary for each project. These files and reports, submitted to the Nova Scotia Department of Mines and Energy, contain a range of information varying from a plan map of the area covered to detailed interpretive geophysical and geological reports. The researcher looking for more complete information is encouraged to contact the participating companies directly.

A majority (some 70%) of the seismic coverage was found to originate from petroleum exploration activities. Coal-related exploration accounted for 15% of the projects listed. The remaining projects were conducted for geotechnical purposes, potash exploration and general structural geological information.

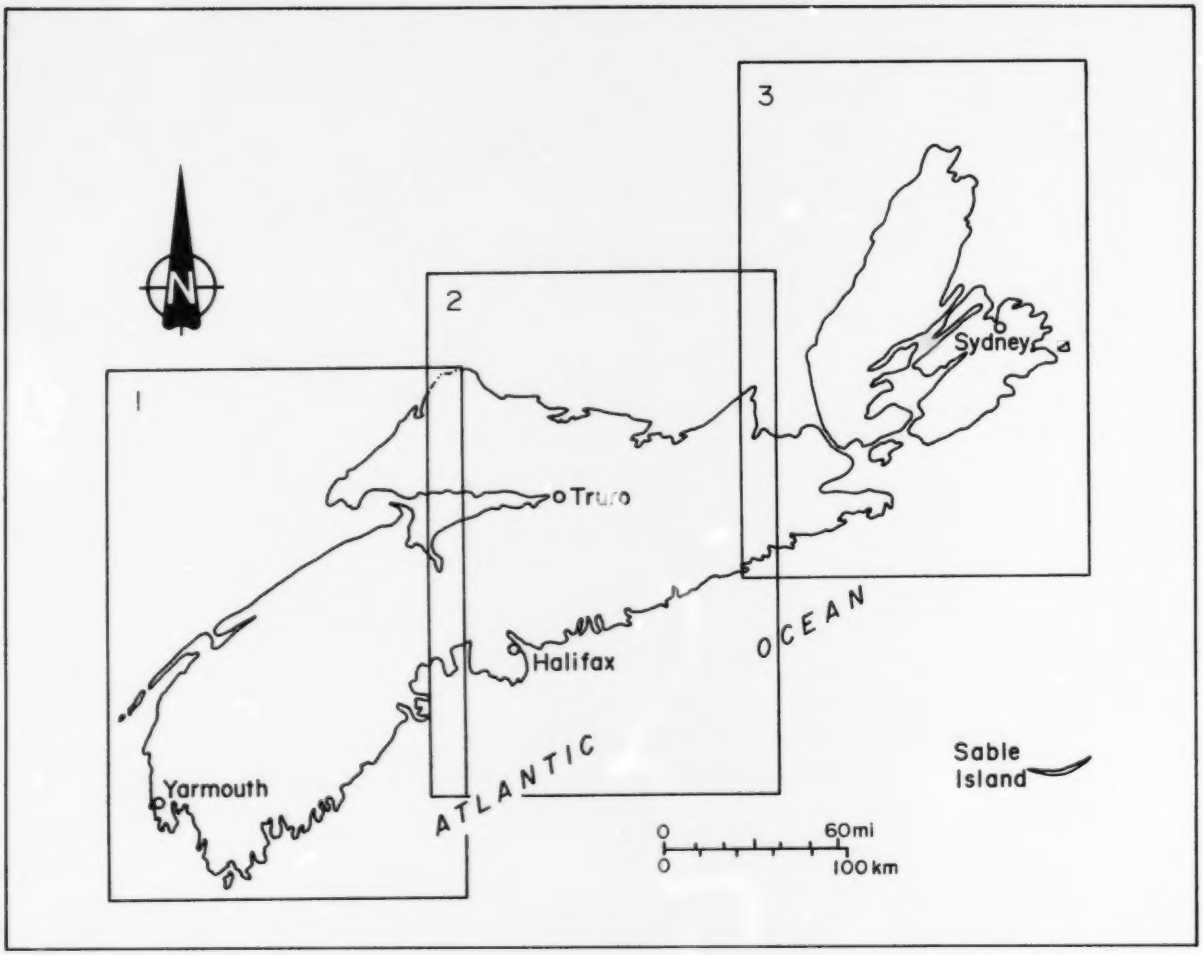


Figure 1. Map of Nova Scotia showing the coverage of the three map sheets in the rear pocket.

MAP INDEX NUMBER 1

AREA

Mabou, Inverness County

DATE

August 27, 1942-October 31, 1942

PURPOSE OF PROJECT

Oil Exploration

COMPANY

Cape Breton Petroleum Company

CONTRACTOR

Heiland Exploration Company

TYPE OF STUDY

Seismic Reflection

COVERAGE

Approximately 25 km (15.5 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Goudge, M. G.
1942: Miscellaneous Memo re Petroleum, Mabou Area, Inverness County, Nova Scotia; Nova Scotia Department of Mines and Energy, Assessment Report 11K/03B 39-J-35(00).

Heiland Exploration Company Limited
1942: Seismograph Surveys Report, Mabou Area, Nova Scotia; Nova Scotia Department of Mines and Energy, Assessment Report 11K/03B 39-J-35(03).

Lion Oil Refining Company
1944: Petroleum Report, Mabou Area, Nova Scotia; Nova Scotia Department of Mines and Energy, Assessment Report 11K/03B 39-J-35(04).

NOTES

According to M. G. Goudge (1942) the results were generally poor due to difficulties with shot hole drilling, seismic reflection response and structural geologic complexities. The maximum depth of shot holes was 45 m (150 ft). Dynamite was used as a source to a maximum of 27.2 kg (60 lbs).

MAP INDEX NUMBER 2

AREA

Southside of Antigonish Harbour, Antigonish County.

DATE

May-July 1958

PURPOSE OF PROJECT

Petroleum Exploration

COMPANY

Lura Corporation Limited

CONTRACTOR

Nova Scotia Research Foundation

TYPE OF STUDY

High resolution reflection seismic, dynamite charges of 2.3-4.5 kg (5-10 lbs)

COVERAGE

11.3 km (7 mi)

SECTIONS AVAILABLE AT NSDME

Sections are included in the report listed below, which shows dip angles plotted on a graph of time (in seconds) versus surface location of shot points.

REFERENCE

Nova Scotia Research Foundation
1959: Geophysical Exploration, Antigonish County; Lura Corporation Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11F/12C 39-B-05(05).

NOTES

In the above report, the reflections were described as fair to poor. Seventy-three shot holes were drilled to an average depth of 8.8 m (29 ft). Three lines were shot (lines 6, 7 and 8).

MAP INDEX NUMBER 3

AREA

Amherst and Wallace Harbour area, Cumberland County.

DATE

June 4, 1963-July 8, 1963
June 20, 1963-August 3, 1963 (included work done in Sydney area)

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Pacific Petroleums Limited

CONTRACTOR

Beaver Geophysical Services Limited

TYPE OF STUDY

Reflection Seismograph

COVERAGE

Approximately 101 km (63 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Beaver Geophysical Services Limited
1963: Report on the Reflection Seismograph Survey for Pacific Petroleums Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/13A 39-E-33(01).

Beaver Geophysical Services Limited
1967: Report on a Seismic Survey for Pacific Petroleums Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/13A 39-E-33(02).

Rodak, L.
1980: Report on Seismic Profiles Recorded by Beaver Geophysical Services and Computed by Geodigit (1972) for Murphy Oil Company Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11K/01A 39-C-95(01).

White, R. D.
1972: The Cumberland Basin - a possible rift; Canadian Mining and Metallurgical Bulletin, v. 85, p. 267-272.

NOTES

According to S. Oczkowski, Chief

Geophysicist, Beaver Geophysical Services Limited, 1967, the work done in the Amherst area was of poor quality, therefore no interpretive mapping was attempted. The work completed in the Pugwash area was of better quality.

MAP INDEX NUMBER 4

AREA

Sydney-Glace Bay, Cape Breton County

DATE

July 8, 1963-July 20, 1963
July 12, 1965-August 9, 1965

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Pacific Petroleums Limited

CONTRACTOR

Beaver Geophysical Services Limited processed by Geodigit (1972)

TYPE OF STUDY

Reflection seismograph, 100% coverage

COVERAGE

Approximately 52 km (32 mi)

SECTIONS AVAILABLE AT NSDME

Section prints for lines 1 to 10 are included in Rodak's Report for Murphy Oil Company Limited.

REFERENCES

Beaver Geophysical Services Limited
1963: Report on the Reflection Seismograph Survey for Pacific Petroleums Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/13A 39-E-33(01).

1967: Report on a Seismic Survey for Pacific Petroleums Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/13A 39-E-33(02).

Rodak, L.
1980: Report on Seismic Profiles recorded by Beaver Geophysical Services and computed by Geodigit (1972) for Murphy Oil Company Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11K/01A 39-C-95(01).

NOTES

According to S. Oczkowski, Chief Geophysicist, Beaver Geophysical Services Limited, 1967, record quality was generally fair. Shot holes, averaging 18.3 m (60 ft), were used with 4.5 to 22.7 kg (10 to 50 lbs) of powder.

MAP INDEX NUMBER 5

AREA

Minas Basin, Cumberland County

DATE

July 1965 - August 1966

PURPOSE OF PROJECT

Geotechnical studies re tidal power projects

COMPANY

Atlantic Development Board (Tidal Power Corporation)

CONTRACTOR

Huntec Limited

TYPE OF STUDY

Marine sparker source

COVERAGE

Approximately 161 km (100 mi)

SECTIONS AVAILABLE AT NSDME

Seismic profiles are included in the report below, obtained by Tricentrol Oils Limited from Atlantic Development Board.

REFERENCE

Far-Away Resources Limited
1983: Progress Report on the Exploration Evaluation of the Tricentrol Oils Limited Acreage in Minas Basin-St. Mary's Graben, Nova Scotia, for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

NOTES

According to Far-Away Resources Limited, 1983, the data quality is good with poor reflectors to 0.2 second.

MAP INDEX NUMBER 6

AREA

Roslin-Malagash, Cumberland County

DATE

August 16, 1965-September 3, 1965

PURPOSE OF PROJECT

Potash exploration

COMPANY

Nova Scotia Department of Mines and Energy

CONTRACTOR

Beaver Geophysical Services Limited

TYPE OF STUDY

Reflection seismic, 15.2-18.3 m (50-60 ft) shot holes at 402.3 m (1,320 ft) intervals, dynamite source

COVERAGE

32.1 km (20 mi)

SECTIONS AVAILABLE AT NSDME

Two sample sections are included in the report below.

REFERENCE

Nova Scotia Department of Mines
1967: Potash Exploration Project; Nova Scotia Department of Mines, Nova Scotia Research Foundation, Beaver Geophysical Services Limited and Saskatchewan Research Council; Nova Scotia Department of Mines and Energy, Open File Report 049.

NOTES

According to the above report, record quality was fairly good except in areas underlain by Mississippian strata. Beaver Geophysical classified the data as varying from poor to fair.

MAP INDEX NUMBER 7

AREA

Cabot Strait

DATE

1967, 1969-1971

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Texaco Exploration Canada Limited

CONTRACTOR

Delta Exploration Inc.

TYPE OF STUDY

Marine Seismic

COVERAGE

2176 km (1,360 mi) Proprietary; 368 km (230 mi) Proprietary or Trade data; only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Lyons, R. H.
1971: Marine Vibroseis Survey, Cabot Strait, Final Report Summer 1971 for Texaco Exploration Company by Delta Exploration Inc.; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Plant, M. G.
1974: Cabot Strait Geophysical Survey Conducted for Texaco Exploration Canada by Kenting Exploration Services and Compagnie Generale de Geophysique; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

This summary includes four separate Delta Exploration Inc. projects.

MAP INDEX NUMBER 8

AREA

Northumberland Strait

DATE

July 29, 1967-August 31, 1967

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Hudson's Bay Oil and Gas Company Limited

CONTRACTOR

Delta Exploration Company Inc.

TYPE OF STUDY

Marine Seismic

COVERAGE

2065 km (1,283) mi); only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Reasor, J. L.
1967: Hudson's Bay Oil and Gas

Company Limited Report on 1967 Geophysical Operation, Northumberland Strait; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

J. L. Reasor states that areas of "very poor" to "no data" constitute an estimated 25% of the total coverage. No meaningful events were recorded from the pre-Mississippian. Two areas of pronounced "poor" to "no data" occur (1) in the northeast where extensive salt tectonics muted the overlying data, and (2) in the southern area along the Nova Scotia mainland and including much of the Northumberland Strait where complex faulting, possible igneous intrusions and nearshore facies have caused poor seismic response.

MAP INDEX NUMBER 9

AREA

Minas Basin

DATE

1968

PURPOSE OF PROJECT

Geotechnical regarding tidal power proposal

COMPANY

Atlantic Tidal Power Programming Board

CONTRACTOR

Dames and Moore

TYPE OF STUDY

Marine seismic, sparker source

COVERAGE

Approximately 24 km (15 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia, for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

Stewart, J. and Ruffman, A.
1977: Report on Marine Seismic Surveys by Geomarine Associates Limited for Canadian Atlantic Power Group; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(10).

NOTES

According to the Far-Away Resources Limited report, the quality was good with poor to good reflections to 0.2 second.

MAP INDEX NUMBER 10

AREA

Bay of Fundy

DATE

September 4, 1968-September 24, 1968
September 8, 1969-September 25, 1969
March 25, 1972-April 3, 1972
November 27, 1973-November 28, 1973

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Mobil Oil Canada, Ltd.

CONTRACTOR

Mobil Oil Canada, Ltd., 1968, 1969
Geophysical Services Inc., 1972, 1973

TYPE OF STUDY

Reflection seismic, air gun

COVERAGE

1968 - 613.8 km (381.5 mi)
1969 - 1437.6 km (893.5 mi)
1972 - 492 km (306 mi)
1973 - 167 km (104 mi)
Total - 2710.4 km (1,685 mi)

SECTIONS AVAILABLE AT NSDME

Yes

REFERENCES

Elekes, I. J. G.
1973: Bay of Fundy 1972 Reflection Seismic Survey by Mobil Oil Canada, Ltd.; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Griesbrecht, A. H.
1972: Mobil Oil Canada, Ltd., Geophysical Operations Report, Bay of Fundy; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Mobil Oil Canada, Ltd.
1970a: Geophysical Report 1968 Operational Season, Grand Banks, Banquereau Bank, Sable Island, South Sable, Georges Bank, Truxton and Bay of Fundy Areas, April; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Mobil Oil Canada, Ltd.
1970b: Geophysical Report 1969 Operational Season, Banquereau, Sable Island, Georges Bank, Truxton and Bay of Fundy Areas, April; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

Three consecutive projects were run which included the Bay of Fundy areas. The 1968 and 1969 surveys produced good to high quality data and the 1972 survey produced data which was generally fair to poor. The reliability of the picks from the 1972 survey decreased near the anticlinal crest due to high energy water bottom multiples and reverberations.

MAP INDEX NUMBER 11

AREA

Offshore Cape St. Lawrence

DATE

May 25, 1968-June 3, 1968
August 5, 1968-September 8, 1968

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Pan American Petroleum Corporation

CONTRACTOR

Geophysical Service Incorporated

TYPE OF STUDY

Marine seismic

COVERAGE

>209 km (>130 mi); only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Birnie, D. E.
1969: Report of Geophysical Seismograph Reflection Survey Conducted by Western Geophysical Company of America and Geophysical Service Incorporated for Pan American Petroleum Corporation; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

MAP INDEX NUMBER 12

AREA

Northumberland Strait-Cabot Strait

DATE

1969, 1970

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Texaco Exploration Canada Limited
Sun Oil Company

CONTRACTOR

Catalina Exploration and Development Limited

TYPE OF STUDY

Marine seismic, air gun

COVERAGE

805 km (500 mi); only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Manning, T. T.
1971: Seismic Survey in the Gulf of St. Lawrence, Petroleum License No. 320; Submarine Area, Purchase of Delta Seismic Data; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Plant, M. G.
1974: Cabot Strait Geophysical Survey Conducted for Texaco Exploration Canada by Kenting Exploration Services and Compagnie Generale de Geophysique; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

Texaco has classed this data as "Participation or Trade Data".

Sun Oil acquired, to the west of Cape Breton, 231.7 km (144 mi) of line from these projects which, according to Manning, vary in quality from "fair to no data".

MAP INDEX NUMBER 13

AREA

Sunnybrae, Pictou County, to Caledonia, Guysborough County

DATE

1970-1971

PURPOSE OF PROJECT

Geophysical investigation of the St. Mary's Graben to determine depth of Horton Group sediments.

COMPANY

Nova Scotia Research Foundation

CONTRACTOR

Nova Scotia Research Foundation

TYPE OF STUDY

Refraction seismic line with reflection seismic run on a portion of the line, explosive charges from 1 to > 6.8 kg (15 lbs)

COVERAGE

Refraction - approximately 21.3 km (13.3 mi)
Reflection - approximately 1.9 km (1.2 mi)

SECTIONS AVAILABLE AT NSDME

The reference below includes an interpretive trace section of corrected reflection events.

REFERENCES

Nova Scotia Research Foundation
1970: Seismic Surveys at Sunnybrae, Pictou County; Nova Scotia Department of Mines and Energy, Open File Report 057.

MAP INDEX NUMBER 14

AREA

Cabot Strait

DATE

1971

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Texaco Exploration Canada Limited

CONTRACTOR

Geophysical Service Incorporated

TYPE OF STUDY

Marine seismic, air gun

COVERAGE

805 km (500 mi); only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Plant, M. G.
1974: Cabot Strait Geophysical Survey Conducted for Texaco Exploration Canada by Kenting Exploration Services and Compagnie Generale de Geophysique; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

Texaco has classed this data as "Participation or Trade Data".

MAP INDEX NUMBER 15

AREA

Gulf of St. Lawrence, Offshore northwest of northern Cape Breton Island

DATE

1971

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Amoco

CONTRACTOR

Unknown

TYPE OF STUDY

Reflection seismic

COVERAGE

Approximately 2000 km (1250 mi) of the project were included within this report's map area

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Lemmens, J.
1972: Geophysical Progress Report, Gulf of St. Lawrence, Nova Scotia Licenses Nos. 258 and 259; by Shell Canada Limited; prepared for Department of Mines, Government of Nova Scotia; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Woods, R. I. and Candy, G. J.
1974: Geophysical Progress Report, Eastern Division Exploration, Gulf of St. Lawrence, Provincial Licenses Nos. L-174, L-175, L-258 and L-259; by Shell Canada Limited; prepared for Department of Mines, Government of Nova Scotia; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

In the above report by Lemmens, line locations marked "Amoco" were plotted along with Shell's 1972 seismic program line locations on a 1:250 000 scale regional map. Amoco line locations were also plotted on line location maps enclosed with the 1974 report by Woods and Candy.

MAP INDEX NUMBER 16

AREA

Offshore Bay St. Lawrence, Offshore Sydney

DATE

July 13, 1971-July 21, 1971

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Murphy Oil Company Limited

CONTRACTOR

Geophysical Service Incorporated

TYPE OF STUDY

Marine seismic reflection, air gun

COVERAGE

519.7 km (322.93 mi); 21 lines

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Geophysical Service Incorporated
1972: Operations Report, Offshore Cape Breton Island for Murphy Oil Company Limited; Nova Scotia Department of Mines and Energy, Assessment Report Offshore 39-W-23(04).

NOTES

Twelve of the 21 lines were run north of Bay St. Lawrence. The other nine were run northeast of Sydney.

MAP INDEX NUMBER 17

AREA

Cumberland County, Colchester County, Pictou County

DATE

May 11, 1972-July 11, 1972
August 30, 1972-September 19, 1972
September 25, 1972-October 3, 1972

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Anchutz (Canada) Exploration Limited

CONTRACTOR

Ray Geophysical Division, Mandrel Canada Limited

TYPE OF STUDY

Vibroseis

COVERAGE

482 km (299.5 mi)

SECTIONS AVAILABLE AT NSDME

Only the Glace Bay line section is included in McGregor's Report (1972)

REFERENCES

Athias, Y. C.
1972: Northern Nova Scotia Seismic Interpretation; Anschutz (Canada) Exploration Limited; Nova Scotia Department of Mines and Energy, Assessment Report 21H/09D 39-E-23(01).

Fawcett, G. W.
1975: Report on Reflection Seismic Survey, Cumberland County, Nova Scotia; Gulf Oil Canada Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/12C 39-E-23(01).

McGregor, M.
1972: Vibroseis Field Report of the Northern Nova Scotia Area and the Glace Bay Area by Mandrel Canada Limited for Anschutz (Canada) Exploration Limited; Nova Scotia Department of Mines and Energy, Assessment Report 21H/09D 39-E-10(01).

NOTES

According to Athias (1972), the data quality is generally fair to good except in faulted areas.

MAP INDEX NUMBER 18

AREA

Middle River

DATE

September 21, 1972-September 24, 1972

PURPOSE OF PROJECT

Investigate structure in Middle River Valley

COMPANY

Nova Scotia Department of Mines and Energy

CONTRACTOR

Mandrel Canada Limited

TYPE OF STUDY

Vibroseis 1200%

COVERAGE

14.8 km (9.209 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Mandrel Canada Limited
1972: Vibroseis Survey Report of the Middle River Area, Province of Nova Scotia; Nova Scotia Department of Mines and Energy, Open File Report 116.

MAP INDEX NUMBER 19

AREA

Gulf of St. Lawrence, Offshore northwest of northern Cape Breton Island

DATE

October 7, 1972-October 22, 1972

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Shell Canada Limited

CONTRACTOR

Shell Oil Company

TYPE OF STUDY

Reflection seismic, air gun, 2400% CDP

COVERAGE

877.1 km (545 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Frey, F. R. and Burke, W. F.
1973: Geophysical Progress Report, Gulf of St. Lawrence, Nova Scotia, Licenses Nos. L-174, L-175, L-258, L-259, by Shell Canada Limited; prepared for Department of Mines, Government of Nova Scotia; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

Lemmens, J.
1972: Geophysical Progress

Report, Gulf of St. Lawrence, Nova Scotia Licenses Nos. 258 and 259 by Shell Canada Limited; prepared for the Department of Mines, Government of Nova Scotia; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

According to the report by Frey and Burke (1973) the quality of data from beneath the evaporite section (Mississippian) is generally good in the salt-withdrawal synclines. Near the salt-sediment contacts, the quality is poor. Interpretive structure maps are included with the report.

MAP INDEX NUMBER 20

AREA

Economy, Debert-Truro, Colchester County

DATE

November 18, 1972-November 30, 1972

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Ram Petroleums Inc.

CONTRACTOR

Ray Geophysical Division, Mandrel Canada Limited, Calgary
Processed by Teledyne Exploration Limited

TYPE OF STUDY

Vibroseis, 600-1200%

COVERAGE

33 km (20.5 mi) 600-1200%, 4 lines

SECTIONS AVAILABLE AT NSDME

Interpretive sections of the four lines are included within the references by Austin (1973) and Jorden Lewis and Jose Geophysical Consultants Limited (1973).

REFERENCES

Austin, G. H.
1973: Preliminary Geological Appraisal, Cobequid Bay Region; for Ram Petroleums Limited; Nova Scotia Provincial Licenses Nos. 342 and 356; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(01).

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia; for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

Jordan Lewis and Jose Geophysical Consultants Limited
1973: Preliminary Report, Seismic Reconnaissance-Cobequid Bay, Nova Scotia; prepared for Ram Petroleums Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(02).

NOTES

According to the Jorden Lewis and Jose Report, the record quality varied from

fair to good on lines 1 and 3, to poor on line 2 and very poor on line 4.

According to the Far-Away Resources Limited report, the data quality is poor to good with poor to adequate reflectors to 3.5 seconds.

MAP INDEX NUMBER 21

AREA

Gulf of St. Lawrence, Offshore of northern Cape Breton Island

DATE

June 9, 1973-June 16, 1973

PURPOSE OF REPORT

Petroleum exploration

COMPANY

Shell Canada Limited

CONTRACTOR

Geophysical Services Inc.

TYPE OF STUDY

Seismic reflection, air gun, 2400% CDP

COVERAGE

391.9 km (243.5 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Woods, R. I. and Candy, G. J.
1974: Geophysical Progress Report, Eastern Division Exploration - Gulf of St. Lawrence, Provincial Licenses Nos. L-174, L-175, L-177, L-258 and L-259 by Shell Canada Limited; prepared for Department of Mines, Province of Nova Scotia; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

In the above report, the seismic data quality was described as poor. Although the purpose of the project was to map structural closure on the downthrown side of the Hollow Fault Zone, the presence of closed structures was not indicated.

MAP INDEX NUMBER 22

AREA

Cabot Strait

DATE

July and August, 1973

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Texaco Exploration Canada Limited

CONTRACTOR

Kenting Exploration Services

TYPE OF STUDY

Marine seismic, air gun source, 2400%

COVERAGE

1497 km (930 mi); Only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Plant, M. G.
1974: Cabot Strait Geophysical Survey; conducted for Texaco Exploration Canada by Kenting Exploration Services and Compagnie Generale de Geophysique; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

According to the above reference, the 1973 survey (including the survey by Compagnie Generale de Geophysique) provided Texaco with data of better quality than had been acquired in previous years, although water bottom related multiples were still problematic. Some of the previous data failed to tie with the new data.

MAP INDEX NUMBER 23

AREA

Cabot Strait

DATE

December, 1973

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Texaco Exploration Canada Limited

CONTRACTOR

Compagnie Generale de Geophysique

TYPE OF STUDY

Marine seismic, Vaporchoc source, 4800%

COVERAGE

250 km (155 mi); only lines within map boundary plotted

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Plant, M. G.
1974: Cabot Strait Geophysical Survey; conducted for Texaco Exploration Canada by Kenting Exploration Services and Compagnie Generale de Geophysique; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

According to the above reference, the 1973 survey (including the survey by Kenting Exploration Services) provided Texaco with data of better quality than had been acquired in previous years. Problems were encountered with water bottom related multiples and a failure in some cases to tie previous data with the new data.

MAP INDEX NUMBER 24

AREA

River Hebert, Amherst-Northport, Cumberland County

DATE

August 12, 1974-September 27, 1974 and March 3, 1975-March 11, 1975

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Gulf Oil Canada Limited

CONTRACTOR

Dresser Olympic Canada Operations

TYPE OF STUDY

Vibroseis, reflection

COVERAGE

193.79 km (120.42 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Fawcett, G. W.
1975: Report on Reflection Seismic Survey, Cumberland County, Nova Scotia; Gulf Oil Canada Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/12C 39-E-23(01).

MAP INDEX NUMBER 25

AREA

Chebaducto Bay

DATE

November, 1974

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Cavalier Energy Inc.

CONTRACTOR

Unknown

TYPE OF STUDY

Marine seismic reflection, 1200%

COVERAGE

90.8 km (56.4 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Lundberg Seismic Consultants Limited
1975: Chedabucto Bay, Nova Scotia, Seismic Interpretation; for Cavalier Energy Inc.; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

The 1200% record sections are enclosed with the report. Six lines were shot but only two display continuous seismic reflections according to the above report.

MAP INDEX NUMBER 26

AREA

Northumberland Strait - St. Georges Bay

DATE

GSI: November 12, 1974-November 26, 1974
CGG: December 27, 1974

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Societe Quebecois D'Initiatives Petrolieres

CONTRACTOR

Geophysical Services Incorporated (GSI)
Compagnie Generale de Geophysique (CGG)

TYPE OF STUDY

Marine seismic, air gun (GSI);
Vaporchoc (CGG)

COVERAGE

Northumberland Strait: 910.9 km (566 mi) 24 and 12 fold

Georges Bay: 30.7 km (19.1 mi) 24 fold (CGG)

SECTIONS AVAILABLE AT NSDME

Four sample sections from the Northumberland Strait are included on a map with the report referenced below.

REFERENCE

Anger, C.
1976: Geophysical Report on Prince Edward Island (Northumberland Strait) for Societe Quebecois D'Initiatives Petrolieres; by Geophysical Services Incorporated and Compagnie Generale de Geophysical; Report No. 7211; Nova Scotia Department of Mines and Energy, Petroleum Resources Sections files.

NOTES

According to Anger (1976), data quality was generally fair to good in spite of difficult conditions of water depth and the proximity of the coast.

MAP INDEX NUMBER 27

AREA

Noel-Kennetcook, Hants County

DATE

February, 1975

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

SOQUIP A.C.C., Aquitaine Company of Canada Limited

CONTRACTOR

Dresser Olympia Canada Operations
Data processing by Geodigit

TYPE OF STUDY

Vibroseis 1200%

COVERAGE

42 km (26 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia; for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

Trepanier, A.
1976: Geophysical Report on Minas Project No. 2051,

Nova Scotia, Report 6495; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

According to Far-Away Resources Limited (1983), the data quality is good with adequate reflectors to 0.9 seconds. Trepanier (1976) states that the reflection quality varies greatly with two of the four lines showing good quality and the other two lines showing "less quality".

MAP INDEX NUMBER 28

AREA

Minas Basin

DATE

1976

PURPOSE OF PROJECT

Unknown

COMPANY

Bedford Institute of Oceanography

CONTRACTOR

Amos

TYPE OF STUDY

Marine seismic, sparker source

COVERAGE

Approximately 22 km (14 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia; for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

NOTES

According to the above reference, the data quality is poor with limited penetration.

MAP INDEX NUMBER 29

AREA

Minas Basin

DATE

1977

PURPOSE OF PROJECT

Unknown

COMPANY

McMaster University

CONTRACTOR

Knight

TYPE OF STUDY

Marine seismic, sparker source

COVERAGE

Approximately 80 km (50 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia; for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

NOTES

According to the above reference, the data quality is poor with limited penetration.

MAP INDEX NUMBER 30

AREA

Offshore, Mabou Mines, Inverness County

DATE

1977

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy

CONTRACTOR

Nova Scotia Research Foundation Corporation

TYPE OF STUDY

High resolution reflection seismic, sparker source

COVERAGE

37 km (23 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Nova Scotia Research Foundation
1978: Integration of Marine Seismic Reflection Data off the West Coast of Cape Breton Island, Nova Scotia; for the Nova Scotia Department of Mines; Nova Scotia Research Foundation, Report 1-78.

NOTES

According to the above report, usable information was gained to about 61 m (200 ft) below the seabed. Seismic data acquired from Hudson's Bay Oil and Gas Company Limited and Continental Oil Company Limited from surveys carried out in 1968 and 1967, respectively, provided information from 914 m (3,000 ft) below seabed to a maximum of 5 640 m (18,500 ft).

MAP INDEX NUMBER 31

AREA

Offshore of Joggins, Cumberland County, and Minas Basin

DATE

May 10, 1977-May 22, 1977

PURPOSE OF PROJECT

Surficial sediment studies re tidal power projects

COMPANY

Tidal Power Review Board (Canadian Atlantic Power Group)

CONTRACTOR

Geomarine Associates Limited

TYPE OF STUDY

Reflection seismic, marine sparker, boomer, air gun

COVERAGE

Offshore Joggins - approximately 37 km (23 mi)
Minas Basin - approximately 59 km (37 mi)

SECTIONS AVAILABLE AT NSDME

Of the nine lines in this area, Section G-A2 is included in the Far-Away Resources Limited report. The nine reflection profiles of the Minas Basin are included within Stewart and Ruffman's report.

REFERENCES

Far-Away Resources Limited
1983: Progress Report of the Exploration Evaluation of the Tricentrol Oils Limited Acreage in the Minas Basin-St. Mary's Graben, Nova Scotia; for Tricentrol Oils Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(06).

Stewart, J. and Ruffman, A.
1977: Report on Marine Seismic Surveys by Geomarine Associates Limited for Canadian Atlantic Power Group; Nova Scotia Department of Mines and Energy, Assessment Report 11E/05D 39-D-74(10).

NOTES

According to Far-Away Resources Limited's report, the data quality within the Minas Basin area is good, with poor to good reflectors to 0.1 second.

MAP INDEX NUMBER 32

AREA

Offshore Port Morien

DATE

September 19, 1977-September 24, 1977

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy

CONTRACTOR

Nova Scotia Research Foundation Corporation

TYPE OF STUDY

Reflection, marine sparker

COVERAGE

80.5 km (50 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Howells, K.
1977: A marine seismic profiling survey to determine geological structures in coal-bearing sediments in Morien Bay and adjacent

offshore areas, Cape Breton Island, Nova Scotia; for Nova Scotia Department of Mines; Nova Scotia Research Foundation Corporation, Report 7-77.

MAP INDEX NUMBER 33

AREA

Offshore Mabou, Inverness County

DATE

June 18, 1978-July 11, 1978

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy

CONTRACTOR

Geomarine Associates Limited; processed by Geodigit Limited

TYPE OF STUDY

Marine seismic, Flexichoc sound source

COVERAGE

200 km (124 mi)

SECTIONS AVAILABLE AT NSDME

Three of the 16 seismic sections have been included in Steward and Meagher's 1978 report. Four line sections are included in the miscellaneous file referenced below.

REFERENCES

Geomarine Associates Limited
1978: Mabou offshore coal exploration seismic survey - track plot and four line sections (line numbers 1, 2, 6, 11); Miscellaneous file; Nova Scotia Department of Mines and Energy, Coal Development Section files.

Steward, J. and Meagher, L.
1978: Marine geophysical survey, offshore Mabou, Cape Breton Island, Nova Scotia; by Geomarine Associates Limited for Nova Scotia Department of Mines and Energy, Project No. 78-16; Nova Scotia Department of Mines and Energy, Open File Report 384.

NOTES

The survey was conducted to provide data from a greater depth than that provided by the previous Nova Scotia Research Foundation survey run during the summer of 1977.

MAP INDEX NUMBER 34

AREA

Offshore Sydney

DATE

July, 1978-September 1978

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy and Cape Breton Development Corporation

CONTRACTOR

Nova Scotia Research Foundation Corporation

TYPE OF STUDY

Reflection seismic

COVERAGE

1031 km (640.7 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCES

Nova Scotia Research Foundation Corporation

1979a: Point Aconi seismic survey for Nova Scotia Department of Mines; Nova Scotia Research Foundation Corporation, Report No. 1-79.

1979b: Donkin and New Waterford seismic reflection survey for Cape Breton Development Corporation; Nova Scotia Research Foundation Corporation, Report 6-79.

MAP INDEX NUMBER 35

AREA

Bras d'Or Lake

DATE

July-August, 1980

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Canada Resources Limited

CONTRACTOR

Processed by Merlin Geophysical Company Ltd.
Shot by Fairfield Aquatronics Ltd.

TYPE OF STUDY

"Fairflex" energy source, 1200% coverage

COVERAGE

Approximately 490 km (305 mi)

SECTIONS AVAILABLE AT NSDME

Yes

REFERENCE

Line map (scale 1:50 000) and seismic sections submitted to Nova Scotia Department of Mines and Energy by Chevron Canada Ltd.

NOTES

The data is generally poor.

MAP INDEX NUMBER 36

AREA

Pictou County, Colchester County, Cumberland County

DATE

June, 1980-December 1980

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Grant Geophysical Limited

TYPE OF STUDY

Reflection seismograph, vibroseis, 1200% CDP

COVERAGE

399.7 km (248.4 mi)

SECTIONS AVAILABLE AT NSDME

Line profiles are included in the report referenced below.

REFERENCE

McCormack, W. J.
1981: Final report on geophysical survey conducted by Chevron Standard Limited, Cumberland Basin, Nova Scotia; Nova Scotia Department of Mines and Energy, Assessment Report 21H/09D 39-E-10(01).

NOTES

According to the above report, the data quality is relatively good except in the southern and western portions of the prospect area. This is thought to reflect complex geology, not a data acquisition or processing problem.

MAP INDEX NUMBER 37

AREA

Bay of Fundy

DATE

September 21, 1980-October 1, 1980

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Western Geophysical Company of America

TYPE OF STUDY

Reflection seismic survey, 3600%, air gun

COVERAGE

807.8 km (502 mi)

SECTIONS AVAILABLE AT NSDME

Line sections are included with the report.

REFERENCE

McCormack, W. J.
1981: Bay of Fundy 1980 report on the geophysical survey conducted by Chevron Standard Limited; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

The North Mountain Basalt event is the only continuous reflection that can be correlated over most of the survey according to McCormack's report. In general, the interpretation of the lines support the half-graben model of the Fundy Basin.

MAP INDEX NUMBER 38

AREA

Northumberland Strait, St. Georges Bay

DATE

July 17, 1981-July 26, 1981

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Western Geophysical Company of America

TYPE OF STUDY

Reflective seismic, air gun

COVERAGE

698 km (433.7 mi)

SECTIONS AVAILABLE AT NSDME

Seismic sections are included within the report.

REFERENCE

McCormack, W. J.
1981: Northumberland Strait report on the geophysical survey conducted by Chevron Standard Limited, 1982; Nova Scotia Department of Mines and Energy, Assessment Report 11F/13B 39-B-10(03).

NOTES

According to the above report, the overall performance of the energy source was exceptional.

MAP INDEX NUMBER 39

AREA

Aspy Bay

DATE

July 21, 1981-August 30, 1981

PURPOSE OF PROJECT

Coal exploration

COMPANY

Petro-Canada Exploration Inc.

CONTRACTOR

Geoterrex Limited

TYPE OF STUDY

Marine reflection seismic, 16 lines, mini-flexichoc, 24 fold

COVERAGE

332 km (206 mi)

SECTIONS AVAILABLE AT NSDME

Interpretative sections on portions of some of the lines have been included in the report referenced below.

REFERENCE

Fortan, G. and Godard, L.
1981: Marine bottom and sub-bottom survey by geophysical methods on-site located in Aspy Bay, Nova Scotia; Operations and Interpretation Report, Geoterrex Project No. 93-12 for Petro-Canada Exploration Inc.; Nova Scotia Department of Mines and Energy, Coal Development Section files.

NOTES

According to the above report, the quality of the sections obtained varies from very good in the eastern three quarters of the survey area, to fair in the western margin of the grid. Processing was applied to emphasize the uppermost portion (100-300 msec) where coal seams were expected. Strong water

bottom and 'peg leg' multiples mask deeper information.

MAP INDEX NUMBER 40

AREA

Cumberland County, Colchester County, Pictou County, Antigonish County.

DATE

August, 1981-December, 1981

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Grant Geophysical Limited

TYPE OF STUDY

Reflection seismograph, vibroseis, 1200% CDP

COVERAGE

280.0 km (174.5 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

McCormack, W. J.
1982: Cumberland Basin and Antigonish, Nova Scotia, final report on geophysical survey conducted by Chevron Standard Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11F/12C 39-B-04(05).

NOTES

According to the above references, the data quality varied from very good to very poor.

MAP INDEX NUMBER 41

AREA

Port Hood-Glencoe, Inverness County

DATE

August 4, 1981-August 26, 1981

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Grant Geophysical Limited

TYPE OF STUDY

Reflection seismograph, 1200% CDP, vibroseis

COVERAGE

71.16 km (44.2 mi)

SECTIONS AVAILABLE AT NSDME

Line sections are included in the report referenced below.

REFERENCE

McCormick, W. J.
1982: Final report on geophysical survey conducted by Chevron Standard Limited; Geophysical License No. 14, 1981-07 to 1981-08; Cape Breton, Nova

Scotia; Nova Scotia Department of Mines and Energy, Assessment Report 11K/03B 39-J-35(10).

NOTES

According to the above references, the data quality is fair to poor.

MAP INDEX NUMBER 42

AREA

Bay of Fundy

DATE

August 15, 1981-August 24, 1981

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Western Geophysical Company of America

TYPE OF STUDY

Seismic reflection, 4800%, air gun

COVERAGE

654 km (406.4 mi)

SECTIONS AVAILABLE AT NSDME

Migrated data display sections and one page of interpretive results are included with McCormack's report.

REFERENCE

McCormick, W. J.
1982: Bay of Fundy 1981 report on the geophysical survey conducted by Chevron Standard Limited; Nova Scotia Department of Mines and Energy, Assessment Report Offshore 39-W-13(05).

MAP INDEX NUMBER 43

AREA

Kennetcook, Hants County; Truro-Middle Musquodoboit, Colchester and Halifax Counties.

DATE

September 30, 1981-November 11, 1981

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Grant Geophysical Limited

TYPE OF STUDY

Reflection seismograph, vibroseis, 1200% CDP

COVERAGE

131.01 km (81.41 mi)

SECTIONS AVAILABLE AT NSDME

Line sections have been included with the report.

REFERENCE

McCormack, W. J.
1982: Minas Basin, Nova Scotia, final report on geophysical survey

conducted by Chevron Standard Limited; Geophysical Licence No. 14, 1981-09 to 1981-11; Nova Scotia Department of Mines and Energy, Petroleum Resources Section files.

NOTES

In the above report, it was stated that the "data quality in this area can best be described as very poor. For this reason, no interpretations and maps have been included with the report...".

MAP INDEX NUMBER 44

AREA

Bay of Fundy

DATE

June 12, 1982-June 28, 1982

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Standard Limited

CONTRACTOR

Sefel Geophysical

TYPE OF STUDY

Seismic reflection, 4800%

COVERAGE

458 km (284.6 mi)

SECTIONS AVAILABLE AT NSDME

Stacked and migrated line sections are included with the report, as are two pages of interpretive results.

REFERENCE

Davitt, W. C.
1983: Bay of Fundy 1982 report on the geophysical survey conducted by Chevron Standard Limited; Nova Scotia Department of Mines and Energy, Assessment Report 21H/09D 39-W-13(03).

NOTES

According to the above report, the top of the North Mountain Basalt is the only horizon that can be correlated across the Bay with any degree of certainty.

MAP INDEX NUMBER 45

AREA

St. Georges Bay

DATE

June 30, 1982-July 22, 1982

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Canada Resources Limited

CONTRACTOR

Sefel Geophysical

TYPE OF STUDY

Reflection seismic, air gun, 4800%

COVERAGE

Cape Tormentine - 151.7 km (94.3 mi); 6 lines

St. Georges Bay - 237.9 km (147.8 mi); 11 lines

SECTIONS AVAILABLE AT NSDME

Seismic sections are included in the report referenced below.

REFERENCE

Davitt, W. C.
1983: Northumberland Strait 1982 report on the geophysical survey conducted by Chevron Canada Resources Limited; Nova Scotia Department of Mines and Energy, Assessment Report 11F/13A 39-B-40(02).

MAP INDEX NUMBER 46

AREA

Stellarton

DATE

August-September, 1982 - University of Calgary
May-June, 1983 - Enertec

PURPOSE OF PROJECT

Coal exploration

COMPANY

Suncor Inc. Resources Group

CONTRACTOR

University of Calgary
Enertec Geophysical Services Limited

TYPE OF STUDY

Reflection seismic survey

COVERAGE

University of Calgary - 3.4 km (2.1 mi); 12 and 24 fold
Enertec - 33 km (20.5 mi); 24 fold

SECTIONS AVAILABLE AT NSDME

Yes; confidential status.

REFERENCE

Data submitted by Suncor Inc. Resources Group to the Nova Scotia Department of Mines and Energy are under confidential status.

MAP INDEX NUMBER 47

AREA

Offshore St. Paul Island

DATE

February 2, 1983-February 18, 1983

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Petro-Canada

CONTRACTOR

Sefel Geophysical Limited

TYPE OF STUDY

Marine seismic

COVERAGE

210 km (130.49 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Data submitted by Petro-Canada to the

Nova Scotia Department of Mines and Energy are under confidential status until February 18, 1988.

MAP INDEX NUMBER 48

AREA

Mabou and Lake Ainslie area

DATE

February 22, 1983-March 9, 1983

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Canada Resources Limited

CONTRACTOR

Chevron Geosciences Limited

TYPE OF STUDY

Reflection seismograph survey

COVERAGE

66.2 km (41.1 mi)

SECTIONS AVAILABLE AT NSDME

Yes; confidential status

REFERENCE

Data submitted by Chevron Canada Resources Limited to the Nova Scotia Department of Mines and Energy are under confidential status until March 19, 1988.

MAP INDEX NUMBER 49

AREA

Debert, Colchester County

DATE

June, 1983

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Tricentrol Oils Limited

CONTRACTOR

Enertec Geophysical Services Limited processed by Seismic Data Processors Limited

TYPE OF STUDY

Reflection seismic

COVERAGE

Approximately 4 km (2.5 mi)

SECTIONS AVAILABLE AT NSDME

Confidential status

REFERENCE

Data submitted by Tricentrol Oils Limited to the Nova Scotia Department of Mines and Energy are under confidential status until June 1988.

MAP INDEX NUMBER 50

AREA

Offshore Ingonish-Sydney

DATE

August 4, 1983-August 7, 1983

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Petro-Canada

CONTRACTOR

Sonics Exploration Limited

TYPE OF STUDY

Marine seismic

COVERAGE

300 km (186.4 mi)

SECTIONS AVAILABLE AT NSDME

No

REFERENCE

Data submitted by Petro-Canada to the Nova Scotia Department of Mines and Energy are under confidential status until August 7, 1988.

MAP INDEX NUMBER 51

AREA

Mabou-Inverness area

DATE

December 1983

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Chevron Canada Resources Ltd.

CONTRACTOR

Chevron

TYPE OF STUDY

Reflection seismic

COVERAGE

Approximately 26 km (16.2 mi)

SECTIONS AVAILABLE AT NSDME

Yes, confidential status.

REFERENCE

Line map (scale 1:50 000) and seismic sections submitted to Nova Scotia Department of Mines and Energy by Chevron Canada Resources Ltd. Data submitted by Chevron Canada Resources Ltd. to the Nova Scotia Department of Mines and Energy are under confidential status until December 1988.

MAP INDEX NUMBER 52

AREA

Offshore Port Hood

DATE

September 19-September 21, 1985

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy-Geological Survey of Canada

CONTRACTOR

McGregor Geoscience Ltd.

TYPE OF STUDY

Reflection, sparker source

COVERAGE

25 km (15.5 mi), 5 lines

SECTIONS AVAILABLE AT NSDME

Two of the five lines run are included in the report references below.

REFERENCE

McGregor Geoscience Ltd.
1986: Marine Seismic Survey, Port Hood area, Cape Breton Island, Nova Scotia; Text and Enclosures; for Geological Survey of Canada; Nova Scotia Department of Mines and Energy, Coal Development Section files.

NOTES

The project was initiated to define the structure more fully and, as such, was a success. The depths to the Six-Foot Seam were projected based on the delineation of a nearby marker horizon.

MAP INDEX NUMBER 53

AREA

Offshore Inverness

DATE

September 21-September 22, 1985

PURPOSE OF PROJECT

Coal exploration

COMPANY

Nova Scotia Department of Mines and Energy/Geological Survey of Canada

CONTRACTOR

McGregor Geoscience Ltd.

TYPE OF STUDY

Reflection, sparker source

COVERAGE

84 km (52.2 mi), 10 lines

SECTIONS AVAILABLE AT NSDME

Three of the 10 lines run are included in the report referenced below.

REFERENCE

McGregor Geoscience Ltd.
1986: Marine Survey, Inverness area, Cape Breton Island, Nova Scotia; Text and Enclosures; for Geological Survey of Canada; Nova Scotia Department of Mines and Energy, Coal Development Section files.

NOTES

The project was initiated to define more fully the structure and, as such, was a success. Dips were delineated which increased the coal tonnage prognosis of the area.

MAP INDEX NUMBER 54

AREA

Kennetcook, Hants County

DATE

October 10, 1986-November 2, 1986

PURPOSE OF PROJECT

Petroleum exploration

COMPANY

Consultants A.G.R.E.N. Canada Inc.

CONTRACTOR

Canjay Exploration (1975) Ltd.

TYPE OF STUDY

Refraction seismic

COVERAGE

Confidential status

SECTIONS AVAILABLE AT NSDME

Yes, under confidential status

REFERENCE

Reference submitted to the Nova Scotia Department of Mines and Energy is under confidential status until November 3, 1991.

MAP INDEX NUMBER 55

AREA

River Hebert-Springhill, Cumberland County

DATE

June, 1985-August, 1987

PURPOSE OF PROJECT

Coal exploration, stratigraphy

COMPANY

Geological Survey of Canada-Nova Scotia Department of Mines and Energy

CONTRACTOR

Geological Survey of Canada, 1985, 1987
G.P.R. Geophysics, 1986

TYPE OF STUDY

Reflection, shot hole

COVERAGE

80 km (49.7 mi)

SECTIONS AVAILABLE AT NSDME

Yes

REFERENCE

Verbal; reports pending.

NOTES

Good resolution was obtained on the Cumberland Group and to the east on the Riversdale Group. The line between Halfway River and Southampton provided poorer quality data.

66°30' 20 10 66°00 50 40 30 20 10 65°00 50 40 30

46°00'

50

40

30

20

NEW BRUNSWICK

Boy

Chignecto

10 Boundary

10 37 44 44 44 44 37 37 10 Project Boundary

17 17 17 17

NEW BRUNSWICK

N.B.
N.S.

Amherst

Parrsboro

Chignecto Bay

Minas Basin

Project Boundary

BAY OF FUNDY

Project Boundary

Project Boundary

Project Boundary

Digby

10

17

37

42

44

Parrsboro

Minas Basin

Project Boundary

Kentville

Windsor

BAY OF FUNDY

Digby

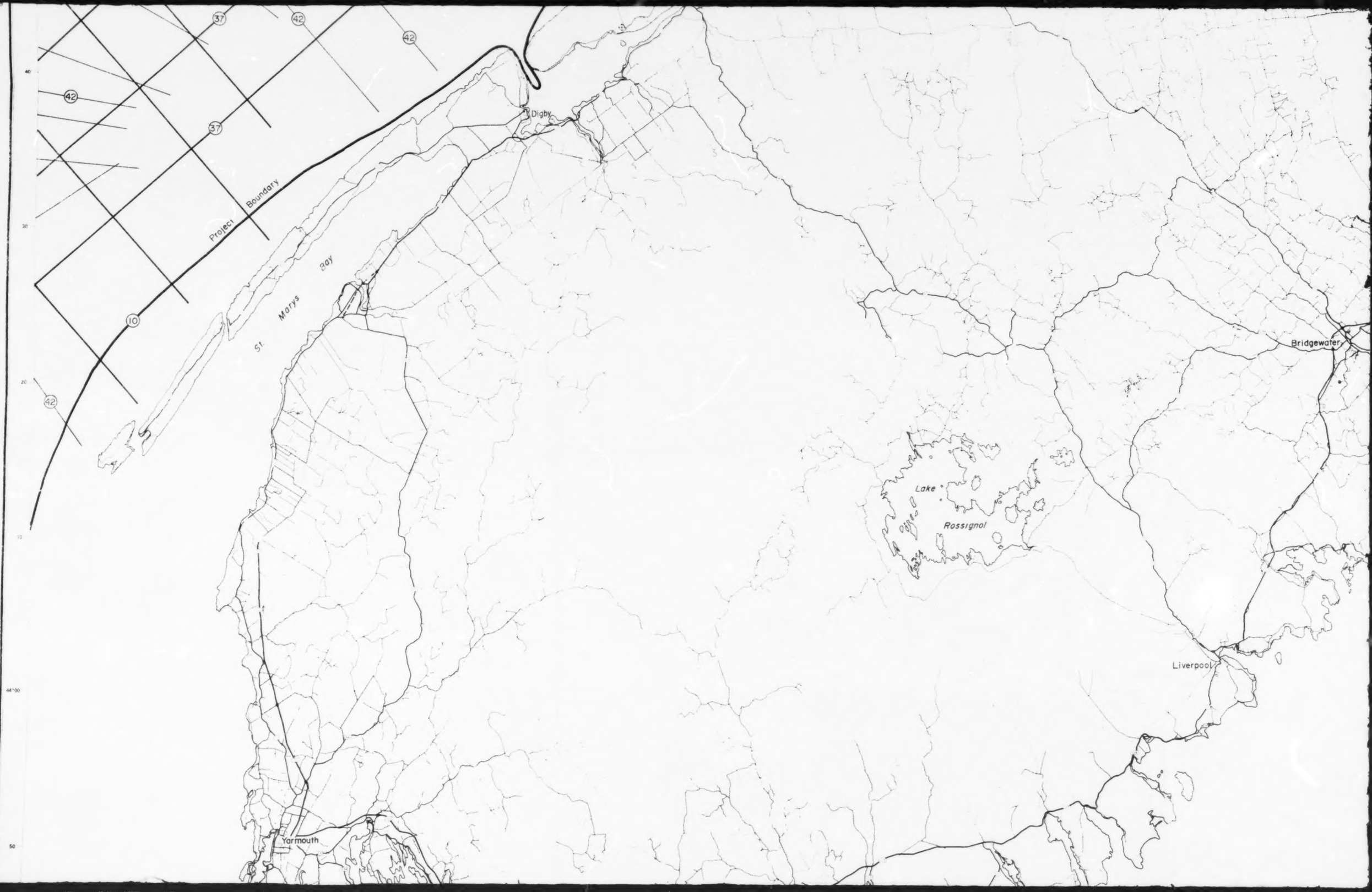
20

10

50

45°00

30


42
37
42
42
37
Project Boundary
10
42
St. Marys Bay
Digby
Bridgewater
Lake
Rossignol
Liverpool
Yarmouth
40
30
20
10
44°00
50

42

Digby

Bridgewater

Lake

Rossignol

Liverpool

Rossignol

Liverpool

Yarmouth

Shelburne

ATLANTIC OCEAN

NOV

R

km 10

miles 5

Base map derived from A Map of Nova Scotia, 1979, for the Nova Scotia departments of Lands and Forests, Mines and Energy, and Highways.

Nova Scotia **Department of Mines and Energy**

Honourable Ken Streatch, Minister
John J. Laffin, P.Eng., FEIC, Deputy Minister

Rossignol

Liverpool

Shelburne

ATLANTIC OCEAN

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
INFORMATION SERIES NO.14

REFLECTION SEISMIC COVERAGE OF ONSHORE AND NEARSHORE NOVA SCOTIA 1942–1987

P.G. McMahon
Halifax, Nova Scotia
1988

MAP 1 of 3
SOUTHWESTERN NOVA SCOTIA

SCALE 1:250,000

km 10 0 10 20 30 km
miles 5 0 5 10 15 miles

LEGEND

⑥ Seismic project map index number

54 Seismic project presently under confidential status

65°00 50 40 30 20 10 64°00 43°20

Ken Streatch, Minister
..., P.Eng., FEIC, Deputy Minister

Map to accompany Nova Scotia Department of Mines and Energy Information Series No. 14.

64°15' 10' 64°00' 50' 40' 30' 20' 10' 63°00' 50' 40' 30' 20'

46°30'

20'

10'

46°00'

50'

Prince Edward Island

New Brunswick

Project Boundary

N.B.
N.S.

Amherst

NORTHUMBERLAND STRAIT

Prince Edward Island

NORTHUMBERLAND STRAIT

Project Boundary

Project Boundary

Project Boundary

40' 30' 20' 10' 63°00' 50' 40' 30' 20' 10' 62°00' 50' 61°45'

46°30'

20'

10'

N.B.
N.S.

NORTHUMBERLAND STRAIT

Amherst

Springhill

Minas Basin

3 Lines

Cobequid Bay

Truro

Pictou

New Glasgow

Project Boundary

NORTHUMBERLAND STRAIT

Project Boundary

Project Boundary

Charlottetown

New Glasgow

Antigonish

Cobequid Bay

Truro

Minas Basin

3 Lines

Windsor

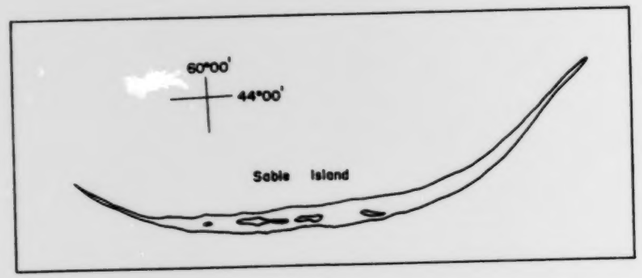
HALIFAX

Dartmouth

NOVA

HALIFAX

Dartmouth



NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

INFORMATION SERIES NO.14

REFLECTION SEISMIC COVERAGE OF ONSHORE

HALIFAX

Dartmouth

ATLANTIC OCEAN

NOVA

RE

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km/sq

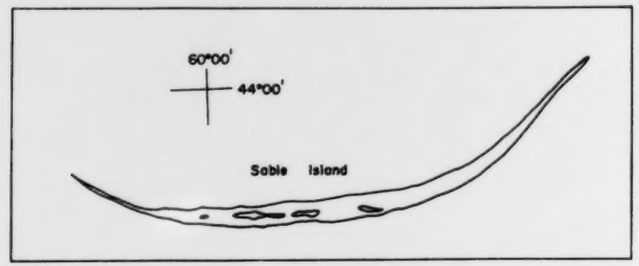
miles 5

Base map derived from A Map of Nova Scotia, 1975, for the Nova Scotia departments of Lands and Forests, Mines and Energy, and Highways.

Nova Scotia
Department of Mines and Energy

Honourable Ken Streatch, Minister
John J. Laffin, P. Eng., FEIC, Deputy Minister

ATLANTIC OCEAN



NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
INFORMATION SERIES NO.14

REFLECTION SEISMIC COVERAGE OF ONSHORE AND NEARSHORE NOVA SCOTIA 1942–1987

P.G. McMahon
Halifax, Nova Scotia

1988

MAP 2 of 3
CENTRAL NOVA SCOTIA

SCALE 1:250,000

LEGEND

⑥ Seismic project map index number

Seismic project presently under confidential status

Ken Streatch, Minister
ffin, P.Eng., FEIC, Deputy Minister

Map to accompany Nova Scotia Department of Mines and Energy Information Series No. 14.

62°00' 50' 40' 30' 20' 10' 61°00' 50' 40' 30' 20' 10'

47°30'

20'

10'

47°00'

50'

GULF
OF
ST. LAWRENCE

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

19

11

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21

7

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16

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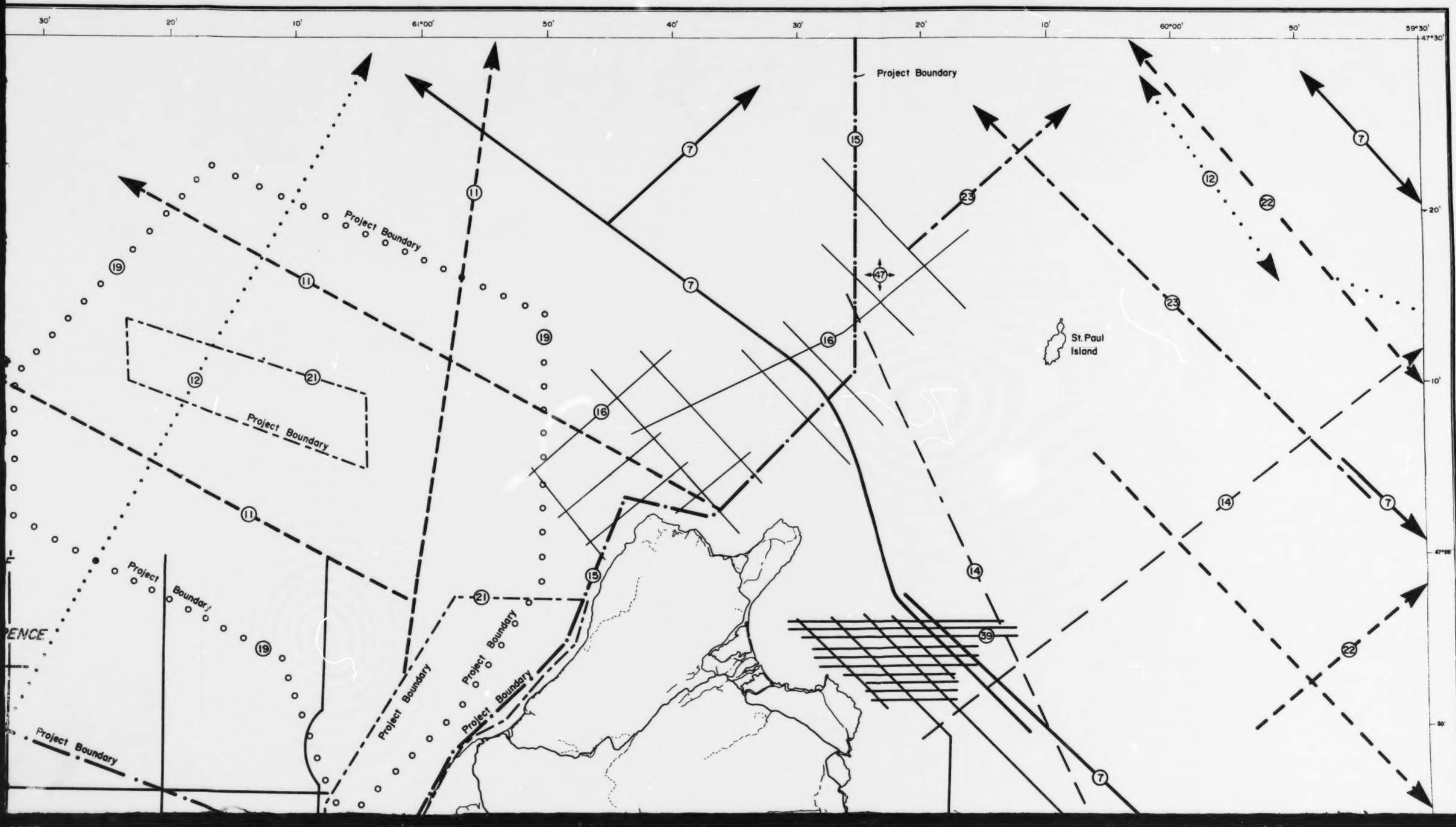
14

39

S
Is


30'
20'
10'
61°00'
50'
40'
30'
20'
10'
60°00'
50'
59°30'
47°30'
20'
10'
Project Boundary
Project Boundary
Project Boundary
Project Boundary
Project Boundary
Project Boundary
Project Boundary
Project Boundary
Project Boundary
St. Paul Island
7
11
19
12
21
23
15
16
47
14
39
22

GULF
OF
ST. LAWRENCE

ATLANTIC

P.E.I.

Northumberland
Strait

Project Boundary

Cheticamp

Inverness

LAKE
AINSLIE

Baddeck

Sydney Mines

North Sydney

Sydney

New Waterford

Project Boundary

Project Boundary

Project Boundary

Strait

Northumberland

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

Project Boundary

St. Georges Bay

Inverness

LAKE AINSLIE

Baddeck

Sydney Mines

North Sydney

Sydney

New Waterford

BRAS D'OR LAKE

St. Peters

Port Hawkesbury

Mulgrave

Guysborough

Chedabucto Bay

NOVA S

Project Boundary

New Waterford

Sydney Mines

North Sydney

Glace Bay

Project Boundary

Inverness

LAKE AINSLIE

Baddeck

Sydney

Project Boundary

BRAS D'OR LAKE

St. Peters

Port Hawkesbury

Mulgrave

Chedabucto Bay

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
INFORMATION SERIES NO.14

St. Georges Bay

Project Boundary

Project Boundary

Mulgrave

Port Hawkesbury

St. Peters

Guysborough

Chedabucto Bay

Canso

ATLANTIC

OCEAN

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km 10

miles 5

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REFLECTION SEISMIC COVERAGE OF ONSHORE AND NEARSHORE NOVA SCOTIA 1942–1987

P.G. McMahon
Halifax, Nova Scotia

1988

MAP 3 of 3
NORTHEASTERN NOVA SCOTIA

SCALE 1:250,000

km 10 0 10 20 30 km
miles 5 0 5 10 15 miles

LEGEND

⑥ Seismic project map index number

Seismic project presently under confidential status

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Map to accompany Nova Scotia Department of Mines and Energy Information Series No. 14.